REMARKS

Applicants submit this reply in response to the non-final Office Action mailed January 19, 2007. Claims 22-42 are pending, of which claims 22 and 42 are independent. Applicants have amended claims 22-26, 28, 33, 35-36, and 39-42. Applicants have also amended the specification to correct minor errors therein. No new matter is being added by these amendments.

In the Office Action, the Examiner objected to claims 24, 25, 35, 39, 40, and 41 because certain variables were not properly defined. The Examiner rejected claims 22-38, 40, and 42 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent Application Publication No. 2003/0133490 to Grote et al. ("Grote"). The Examiner rejected claims 39 and 41 under 35 U.S.C. § 103(a) as being unpatentable over Grote in view of European Patent Application EP 0778479 A2 to Horita et al. ("Horita"). Applicants respectfully traverse all pending objections and rejections and request reconsideration of the application, as amended.

Claim Objections

The Examiner objected to claims 24, 25, 35, 39, 40, and 41 because the following variables were not properly defined: n, n_1, n_2, λ_{max}, and λ_{min}. Applicants have amended the objected-to claims to more specifically define each of these variables. Accordingly, Applicants submit that the pending claim objections should be removed.

35 U.S.C. § 103(a) Rejections

Applicants respectfully traverse the pending 35 U.S.C. § 103(a) rejections because a *prima facie* case of obviousness has not been established.

> To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or

> motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

M.P.E.P. § 2142 (8th Ed., Rev. 4, October 2005), p. 2100-134.

A *prima facie* case of obviousness has not been established in this case because, among other things, Grote fails to teach or suggest at least "said second cladding of said second waveguide comprising a tuneable material and said first cladding of said first waveguide comprising a non-tuneable material," as recited in Applicants' amended independent claims 22 and 42.

Grote teaches "a tuneable optical grid-assisted add/drop filter in codirectional mode of operation, which has the structure of a directional coupler filter with at least two adjacent waveguides having different refractive indices." Grote, Abstract. "[T]he material of the two waveguides [consists] of two different material classes... with the coefficient of the thermal refractive index dn/dT and/or the electro-optical coefficient dn/dE and/or the dispersion dn/dλ of the two materials differing." Grote, ¶ [0008]. "An embodiment of the add/drop filter in accordance with the invention [of Grote] provides for one waveguide being made of silica and the other waveguide being made of a polymeric material, more particularly a polymeric material of non-linear optical properties." Grote, ¶ [0010].

As noted above, Grote discloses an add/drop filter having a first waveguide constructed from a tuneable material (e.g., a polymeric material) and a second

waveguide constructed from a non-tuneable material (e.g., silica). However, Grote does not appear to disclose particular cladding materials for use with these waveguide materials. For instance, FIGS. 2 and 3 in Grote appear to illustrate waveguide cores 1-1' and 2-2' respectively constructed from tuneable and non-tuneable materials (*see* Grote, ¶¶ [0025]-[0029] (disclosing silica and polymeric waveguide materials)), without reference to the waveguides' corresponding cladding materials. More generally, Grote teaches that in the disclosed embodiments "[t]he two waveguides are separated by silicon measuring 4 μm in thickness." Grote, ¶ [0025]. Thus, at best, Grote discloses that the cladding for both the first and second waveguides is silicon.

In light of the above, Applicants respectfully submit that Grote fails to teach or suggest at least "said second cladding of said second waveguide comprising a tuneable material," as recited in Applicants' independent claims 22 and 42. For instance, Grote does not hint or suggest that the silicon layer positioned between the two adjacent waveguides functions as a tuneable cladding material. Indeed, the tuneable materials specifically taught in Grote are polymeric materials and not silicon-based. *See, e.g.,* Grote, ¶ [0025]. As such, the silicon layer disclosed in Grote cannot anticipate or render obvious "said second cladding... comprising a tuneable material," as claimed.

Additionally, Applicants further submit that one of ordinary skill in the art would find no motivation to modify Grote to utilize "said second cladding... comprising a tuneable material," as recited in Applicants' independent claims 22 and 42. More particularly, since Grote teaches a tuneable (polymeric) waveguide core, there would be no motivation to employ an additional tuneable cladding material around the already-tuneable waveguide core. Such a tuneable cladding material would likely be

redundant and unnecessary, as the add/drop filter in Grote already attains its tuneability based on selection of the core waveguide materials. *See, e.g.,* Grote, ¶¶ [0025]-[0029].

Finally, Applicants note that the Examiner apparently acknowledges that Grote is silent regarding tuneable and non-tuneable cladding materials, as claimed. Instead, the Examiner contends that "[i]t is inherent that each of the first and second waveguides [in Grote] has a core and a cladding." Office Action, p. 3. Regardless of whether the waveguides in Grote inherently comprise core and cladding materials, Applicants submit that Grote fails to specifically teach or suggest tuneable cladding materials, and therefore cannot reasonably anticipate or render obvious at least "said second cladding of said second waveguide comprising a tuneable material," as explicitly recited in Applicants' independent claims 22 and 42.

For at least the above-noted reasons, Applicants submit that independent claims 22 and 42, as amended, are allowable over the art of record. Claims 23-41 depend on independent claim 22 and are therefore allowable for at least the same reasons.

Conclusion

The preceding remarks are based only on the arguments in the Office Action, and therefore do not address patentable aspects of the invention that were not addressed by the Examiner in the Office Action. The claims may include other elements that are not shown, taught, or suggested by the cited art. Accordingly, the preceding remarks in favor of patentability are advanced without prejudice to other bases of patentability.

In view of the foregoing amendments and remarks, Applicant respectfully requests reconsideration and reexamination of this application and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

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